ABSTRACT OF THE DISCLOSURE

The present invention relates to the traveling-wave amplifier having a π-type output transmission line structure.

In traveling-wave amplifiers having conventional output line structures including T-line and m-derived-line structures, additional capacitance and inductance are attached to the output of the transistors for velocity matching in input/output transmission lines in order to improve gain-bandwidth product. However, it is difficult to achieve velocity matching of output/input transmission lines without stability problem due to the influence of the additional capacitance and inductance through the feedback capacitance of the transistor used.

The present invention provides the traveling-wave amplifier having a π-type output transmission line structure, where the additional capacitance used for velocity matching of input/output transmission lines is connected in the middle of the output line. Since the additional element is isolated from the output of the transistor by the output transmission line, the π-type output transmission line structure can achieve velocity matching of output/input transmission lines without stability problem associated with the additional capacitance and the feedback capacitance of the transistor. The traveling-wave amplifier having a π-type output transmission line structure has an improved bandwidth, gain flatness, and stability compared to traveling-wave amplifiers having the conventional output line structures.